



**Course Name:**

Soil-Structure Interaction

<b>Course Number:</b> 20-152	<b>Credit:</b> 3
<b>Program:</b> Graduate	<b>Course Type:</b> Technical Selective
<b>Prerequisite:</b> -	<b>Corequisite:</b> -

**Course Description (Objectives):**

This course aims to introduce students to the fundamentals and theoretical and experimental methods of modeling soil-structure interaction, as well as the basics of wave propagation.

**Course Content (outline):**

- Chapter 1: Fundamentals and Importance of Soil-Structure Interaction
- Chapter 2: Kinematic and Inertial Interaction
- Chapter 3: Soil-Structure Interaction in Design Codes and Practical Applications
- Chapter 4: Cone Models for Soil-Structure Interaction
- Chapter 5: Experimental Soil-Structure Interaction (Laboratory and In-Situ)
- Chapter 6: Concepts of Wave Propagation
- Chapter 7: Wave Propagation Models Used in Soil
- Chapter 8: Fundamentals of One, Two, and Three-Dimensional Wave Propagation
- Chapter 9: Site Response
- Chapter 10: Direct Methods for Modeling Soil-Structure Interaction
- Chapter 11: Formulation of Infinite Boundaries

**References:**

- Wolf, J. (1985). Dynamic soil-structure interaction, Prentice Hall, Inc.
- Wolf, J. (1988). Soil-structure interaction analysis in time domain, Person College Div.
- Soil-structure interaction for building structures, NIST GCR 12-917-21, NEHRP, 2005.
- Improvement of nonlinear static seismic analysis procedures, FEMA 440, NEHRP, 2005.